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United States Patent [19]**Quellais et al.**[11] **Patent Number:** **6,079,125**[45] **Date of Patent:** **Jun. 27, 2000**[54] **MULTILAYER SOLE FOR SPORT SHOES**[75] Inventors: **Jacques Quellais**, Saint-Jorioz;
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of France[73] Assignee: **Salomon S.A.**, Chavanod, France[21] Appl. No.: **08/319,096**[22] Filed: **Oct. 6, 1994****Related U.S. Application Data**[63] Continuation of application No. 07/995,083, Dec. 22, 1992,
abandoned.[30] **Foreign Application Priority Data**

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36/114[58] **Field of Search** 36/30 R, 107,
36/114, 108, 76 C, 28, 43, 44, 140, 91,
25 R, 102, 27, 29[56] **References Cited****U.S. PATENT DOCUMENTS**

4,101,704	7/1978	Hiles	36/30 R X
4,399,620	8/1983	Funck	36/30 R
4,651,445	3/1987	Hannibal	36/44 X
4,674,205	6/1987	Anger	36/30 R X
4,694,591	9/1987	Banich et al.	36/30 R X
4,757,620	7/1988	Tiitola	36/30 R X

4,854,057	8/1989	Misevich et al.	36/30 R X
4,878,300	11/1989	Bogaty	36/114 X
4,890,397	1/1990	Harada et al.	36/30 R
4,905,382	3/1990	Lin	36/30 R X
5,014,706	5/1991	Philipp	36/43 X
5,042,174	8/1991	Nichols	36/30 R X
5,052,130	10/1991	Barry et al.	36/114 X
5,084,987	2/1992	Flemming	36/30 R X
5,191,727	3/1993	Barry et al.	36/114 X

FOREIGN PATENT DOCUMENTS

0272082	of 0000	European Pat. Off.	
0458174	of 0000	European Pat. Off.	
2520986	of 0000	France	
2556569	of 0000	France	
3723549	of 0000	Germany	
9109547	7/1991	WIPO	36/107

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Amernick[57] **ABSTRACT**

The sole comprises three layers, including (a) an outer or ground contact sole (7) having flexibility, ground-gripping, and abrasion-resistance properties, (b) an upper or comfort layer (8) positioned directly beneath the foot and having elastic shock-absorption properties, and (c) an intermediate layer or rib (9) positioned directly between the upper portion of the contact layer (7) and the lower portion of the comfort layer (8) and having torsional rigidity properties which provide both for the distribution of shocks sensed by the contact layer (7) and for their diffusion over the comfort layer (8) before they come into contact with the foot (4).

27 Claims, 6 Drawing Sheets